ADSC/WSDOT Team Meeting Attendees **May 26, 2005**

Name	Company	Telephone	E-mail
Allen Tony	WSDOT	360-709-5450	allent@wsdot.wa.gov
Bauer Mike	WSDOT	360-705-7190	bauerm@wsdot.wa.gov
Carnevale Bob	DBM	253-838-1402	rcarnevale@dbmcm.com
Clarke Patrick	WSDOT	360-705-7220	clarkp@wsdot.wa.gov
Ewen Doug	United Pipe	206-786-3052	dewen@unitedpipe.com
Gaines Mark	WSDOT	360-705-7827	gainesm@wsdot.wa.gov
Grieder Jeff	Malcolm Drilling	253-395-3300	jgrieder@malcolmdrilling.com
Gundlach Mark	AGRA	360-474-8290	
Hegge William	WSDOT	360-709-5415	heggewi@wsdot.wa.gov
Macnab Alan	CJA	206-575-8248	amacnab@condon-johnson.com
Morin Don	D.M.I.	253-891-1311	don@dmidrilling.com
Nicholas Cathy	FHWA	360-753-9412	cathy.nicholas@fhwa.dot.gov
Sheikhizadeh Mo	WSDOT	360-705-7828	sheikhm@wsdot.wa.gov
Swett Geoff	WSDOT	360-705-7157	swettg@wsdot.wa.gov
Thomson Steven	WSDOT	360-357-2757	thomsst@wsdot.wa.gov

The meeting began at 8:30 AM. The previous meeting minutes were reviewed with no comments.

Bill Hegge, Geoff Swett, and Steven Thomson from WSDOT were in attendance to discuss constructability of the Manette Bridge. Cathy Nicholas from FHWA was greeted and welcomed as a new member to the ADSC team.

Constructability Review – Manette Bridge, Bremerton, WA

Geoff Swett and Bill Hegge presented an overview of the Manette Bridge replacement project that is in design. This project replaces the existing structure with a new bridge built to the South. The foundation consists of six piers in the water and two abutments. The intermediate piers will have two or three shafts per pier. Bridge is hoping to make the design work with two 10'-0" diameter shafts at each pier, although it's possible that larger diameter shafts will be necessary. The abutments will have two or three smaller diameter shafts.

The soils at this project are generally very hard (50 blows/3"). There is a 15-foot thick layer of soft surface layer near the middle of the channel, but the soil below this soft layer and the soil elsewhere in the channel is hard material. The maximum water depth is about 40 feet and is tidally influenced.

ADSC team asked if this work could be done from a barge. WSDOT didn't see a problem constructing from a barge, but was assuming trestle construction for permitting purposes. ADSC had mixed opinions about whether trestle or barge construction would be most feasible. WSDOT mentioned that the outside intermediate piers (Piers 2 and 7) are close to

the shore and are above the water line part of the time. Since it wouldn't be acceptable to ground a barge, it appears that trestle construction would be necessary for these piers.

ADSC asked about the location of the construction joint between the shaft and column. WSDOT intends to locate this joint approximately two feet above the high water elevation. ADSC stated that this was good, and encouraged WSDOT not to locate the joint below the water line.

Don mentioned that this project might lend itself to precast concrete columns. WSDOT agreed that this has potential and would look at this further.

ADSC strongly encouraged WSDOT to limit the shaft size to 10'-0". Construction will become more complex and challenging if larger diameter shafts are required. Several ADSC members also expressed concern about the proposed embedment of the casing into the hard glacial till. Preliminarily, WSDOT has suggested approximately ten feet of embedment to seal out the surface water. ADSC was concerned about achieving ten feet of embedment in this stiff material, and suggested requiring only two feet of embedment. WSDOT agreed to investigate.

ADSC members didn't see a problem installing these shafts with the six-inch tolerance allowed by the Special Provision. They also suggested that the template for shaft installation be capable of withstanding the lateral loads (tidal, wind, etc). With the minimal embedment of two feet, soils will provide little lateral resistance against casing movement.

ADSC will submit written comments to WSDOT by Friday, June 3.

Action Plan:

- Alan to collect and submit written constructability comments to WSDOT.

Action Item Update

Salmon Creek Sonic Coring

An agreement has been reached to perform sonic coring at this project site. Boart will perform the sonic coring sometime in June. They plan to drill a single, 60-foot core. WSDOT Geotech will retrieve the core and perform soils analysis. The results of sonic coring will then be compared to the results of the conventional drilling that was performed. WSDOT is splitting the cost of the sonic coring with Boart.

Action Plan:

- Mo will keep the team informed of the sonic coring progress.

Maintaining Minimum Slurry Head of Ten Feet

After further review, the existing language in the Special Provision is acceptable. It gives the Contractor the option to reduce the minimum slurry head with approval of the Engineer.

Action Plan:

- No action needed.

Force Account Payment Simplification
Mo is still working on this issue. The letter requesting ADSC to assemble this pricing information is being reviewed by the Attorney General's Office.

Action Plan:
- Mo to submit letter to ADSC requesting force account pricing.

Allowing for PGA Alternate Side Pocket Design
The WSDOT Bridge and Structures Office is not comfortable allowing side pockets at this time. Don asked that side pockets still be allowed as a repair in case an anchor needs to be replaced. WSDOT agreed that this might be acceptable on a case-by-case basis as a repair.

Action Plan:
- No action needed.

ADSC Research Grant Application
Alan provided information on the ability of ADSC to participate in research projects. WSDOT and Caltrans are planning research on post grouting shaft tips. Alan suggested the simplest approach to getting research assistance is to apply to either the ADSC International or West Coast Chapter Industry Advancement Fund. Using this approach, ADSC can contribute by furnishing labor, equipment, and materials for research projects. For example, ADSC could construct an instrumented shaft that would then be turned over to the researchers.

Dr. Gary Norris from University of Nevada-Reno is the Principle Investigator for the shaft tip grouting project. Alan suggested that Gary contact Scott Litke from ADSC to discuss.

ADSC also has ways to provide direct funding for research projects, although the application process is more complicated. Alan can provide additional information is WSDOT wishes to pursue direct funding.

Action Plan:
- Mo to put Caltrans/Gary Norris in touch with Scott Litke.

Need for PGA Verification Testing
Tony investigated and could find no reason why verification testing should be required *in non-clay soils*. In clay soils, verification testing will still be necessary. Mike will rewrite the specifications to make verification testing the exception rather than the rule. A GSP will be written to include verification testing when the wall is constructed in clay soils.

Action Plan:
- Mike to rewrite specification to eliminate verification testing for PGA's except for clay type soils. He will also write a GSP to include verification testing in clay soils.

Revisions to Standard Specifications for Load Cells

Mike presented the changes he made to the specifications describing the use of load cells. This revised language was acceptable to the Team. ADSC pointed out that this same language should be incorporated into the standard specification for soil nails. Mike agreed, and will make these changes.

ADSC noted that it seemed strange to have specification language for PGA's with loads of less than 20,000 pounds. Nobody from ADSC or WSDOT could recall using a PGA with a load of less than 20,000 pounds. Mike will remove this language from the PGA specification. This criterion is still required for soil nails. ADSC also pointed out that verification testing should be removed from the PGA specification per the Action Item Update above.

Action Plan:

- Mike to incorporate changes to PGA and soil nail specifications described above.

Incorporation of Yield Plots into Shaft Special Provision

Mike modified the drilled shaft special provision to require the Contractor to complete and submit concrete yield plots. ADSC mentioned that there should be a time requirement on how soon this plot needs to be submitted after completion of the shaft. Plots can provide the greatest benefit if they are reviewed soon after concrete placement. It was suggested that the plots be submitted within 24 hours.

Mike from Agra had provided an Excel spreadsheet of a yield plot to Mo. Agra agreed that it would be acceptable for Mo to pass this spreadsheet on to the other ADSC members.

Action Plan:

- Mike to incorporate changes to PGA and soil nail specifications described above.
- Mo to provide yield plot spreadsheet to ADSC members.

New CDF Mix Design

Some drilled shaft contractors have requested to use up to 25% air content in the CDF concrete used for soldier piles. The higher air content allows easier pumping of this concrete. WSDOT had no objection to allowing this higher air content for the soldier pile CDF mix.

While on the topic of soldier piles, ADSC asked for some clarification on when we will be allowing CDF to replace the structural concrete in the toe of the soldier piles. WSDOT responded that CDF can generally be used in the toe of tieback soldier piles, but structural concrete would be required in cantilever soldier piles. ADSC pointed out that both tieback and cantilever soldier piles see passive pressures. They felt it wasn't clear why structural concrete is required in one but not the other.

Tony and Patrick will discuss this further internally and present their findings and conclusions at the next meeting.

Action Plan:

- Tony and Patrick to discuss the need for use of lean mix in cantilevered soldier piles and report to Team at next meeting.

Allowing for Telescoping at Abutments

Preliminarily, WSDOT thought it would be acceptable to telescope abutment shafts. Soils around these shafts are generally stiff because these shafts are typically constructed in fill material. The additional stiffness gained by telescoping the abutment shafts may be negligible.

Patrick requested that ADSC provide the upper limits on the number of steps and range in diameters that they would use for telescoping. After a brief discussion, ADSC suggested the upper limit would be two steps with 12 inches in each step. For example, a four-foot diameter shaft would be stepped to a five-foot and six-foot diameter.

Although telescoping appears to be acceptable, Patrick will conduct a parametric analysis to determine the effects of telescoping abutment shafts. At the same time, Mike will work on specification language that allows shaft telescoping at abutments.

Action Plan:

- Alan to provide email with written confirmation of maximum range for telescoping.
- Patrick to work on parametric analysis to confirm that telescoping at abutments is acceptable.
- Mike to revise specifications to make telescoping of abutment shafts allowed unless specifically prohibited elsewhere in the contract.

Prequal Requirements for Noise Wall Shafts

Some ADSC members had expressed concern that we have no prequalification requirements for contractors building noise wall shafts. There are also no prequalification requirements for sign bridge and luminaire shafts. WSDOT Headquarters Roadway Construction handles constructability issues with these types of structures.

Mo presented this concern to Jim Spaid from Roadway Construction. Jim could only recall two cases where lack of a Contractor prequalification had created problems. Jim will present this at an upcoming WSDOT/Association of General Contractors meeting to get their opinion. Jim will let Mo know how the discussion went.

Action Plan:

- Mo to provide update at next meeting about AGC's opinion.

When does Force Account Begin

Mo brought up a new topic about when force account obstruction removal begins. He wondered if issues ever come up in the field about what constitutes an obstruction. The Special Provision defines an obstruction as "*a specific object (including, but not limited to, boulders, logs, and man made objects) encountered during the shaft excavation operation which prevents or hinders the advance of the shaft excavation*". The Team agreed that

cobbles would not be considered obstructions. If cobbles were not identified in the boring logs, there may be entitlement as a changed condition.

There was some discussion about what constitutes a boulder and what differentiates a boulder from a cobble. Alan said that this is defined at the beginning of the boring logs.

Tony suggested a minor change to the obstruction removal specification. The specification currently references the rate of advancement relative to the rest of the shaft excavation. Tony pointed out that it should be relative to the rate of advancement in the soil unit at the time the obstruction is encountered. The Team agreed, and Mike will coordinate with Tony to clarify this wording.

Action Plan:

- Mike to modify the rate of advancement portion of the special provision.

WSDOT Provide Pile Schedule for Soldier Piles

Don raised a concern about WSDOT not providing a table of soldier pile lengths in the Contract. Mike mentioned that tables are provided much of the time (for example, on the upcoming 48th to Pacific project). WSDOT acknowledged that it is a benefit to provide a soldier pile schedule. Bridge and Structures will make an effort to include this as a standard item on future soldier pile projects.

Action Plan:

- Mo will update the team on WSDOT's action on this topic

Single Bore Multiple Anchors

Mo is still looking at the use of single bore multiple anchors. He needs to discuss this with Geotech.

Action Plan:

- Mo to discuss with Geotech and provide update at next meeting.

Future Meeting Date

The next ADSC/WSDOT Team Meeting is scheduled for July 7, 2005.